IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application	:	Bernard Reesink et al
Application No.	:	09/744,134
Filed	:	March 21, 2001
For	:	HYDROGENATION PROCESS
Examiner	:	Norton, Nadine, G.
Attorney's Docket	:	VER-140XX

Group Art Unit: 1764

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I hereby certify that this correspondence is being sent via facsimile to Examiner Nadine G. Norton, Group Art Unit 1764, Fax No. (703) 872-9310, on 8-8-3.

By: _____
Charles L. Gagnebin III
Registration No.25,467
Attorney for Applicant

* *

Via Facsimile
Commissioner for Patents
Washington, D.C. 20231

DECLARATION BY BERNARD H. REESINK UNDER 37 C.F.R. §1.132

Sir:

I, Bernard H. Reesink, a citizen of The Netherlands, residing at Maarn, The Netherlands, hereby declare the following:

1. I am a co-inventor of the invention described and claimed in the above-identified patent application.

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2. I have received training in Chemistry, having received the master's degree in Chemistry from the University of Utrecht.

3. I have had work experience in heterogeneous catalysis at Engelhard De Meern BV, from 1986 through the present, as a Senior Chemist in the Catalytic Materials Department. I have been the author or co-author of approximately three technical articles, seven patents and delivered papers relating to catalyst preparation and performance testing.

4. I have read and am familiar with the prosecution history of the present application, including the Office Action dated October 29, 2002 (Paper No. 11).

5. In the detailed action, the Examiner rejects all the claims in the present application under 35 U.S.C. §103(a) as being unpatentable over Antos (U.S. Patent 4,036,743 (the Antos patent)), some of the claims being rejected over the Antos patent in combination with Barr et al. (U.S. Patent 5,868,921). The Examiner states that Antos discloses a catalyst comprising "nickel (0.05 to 5%) on a carrier (i.e., a support), a precious metal in the form of platinum (0.01 to 2 wt%) and a metal oxide in the form of bismuth oxide." (Office Action, bottom paragraph from pages 2-3.) While the Examiner notes that Antos does not disclose the combination of catalyst components as a "mixture," she asserts that "it would have been obvious to one of ordinary skill in the art at the time that the invention was made that the composite catalyst of Antos would similarly function to remove mercaptans because the

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composite catalyst contains the same catalytic components as applicants' mixture. The same catalytically active components on a single support would perform similarly to each catalytically active component on separate supports mixed together." (Office Action, page 3.) I respectfully disagree with the rejections.

6. This declaration provides a description of experiments conducted in my laboratory in which the process of the invention is compared with Example 1 in the Antos patent, the closest prior art cited in the outstanding Office Action. The sulphur resistance of the Antos catalyst was compared to that of a catalyst in accordance with the present invention, as described below.

7. Three components of a catalyst according to the invention, A, B and C, were prepared in accordance with the description in the present application and catalyst D was prepared in accordance with Example 1 of the Antos patent. Component A was prepared using 0.36 wt.% Pd/0.12 wt.% Pt on silica/alumina catalyst. Component B comprised 1.0 wt.% Bi on alumina catalyst, which was prepared by incipient wetness impregnation of basic bismuthnitrate on alumina spheres. The material was next dried and calcined for conversion into bismuthoxide. Component C was a co-precipitation of 60 wt.% nickel on silica, which underwent drying, calcinations, extrudation and reduction. Catalyst D (using the methodology in Example 1 of the Antos patent) contained 0.3 wt.% Pt + 0.2 wt.% Bi + 1.0 wt.% Ni on an alumina sphere.

8. The three components (A-C) of the catalyst according to the invention were used together and compared with catalyst D (according to Antos) in the gas-phase hydrogenation of tetralin at atmospheric pressure. The tests were performed with 1000 mg of catalyst D. For the catalyst according to the invention, a combination of catalytic components A, B and C in the same total amount as in catalyst D were used. Component A (600 mg) was contacted first with the feed. The feed was then contacted with component B (200 mg), followed by the third component C (16.7 mg). The temperature applied was 228°C and thiopene was added as the sulphur compound. The dosage of the sulphur compound was administered with a pulse loop of 0.5 cm^3 (STP) thiophene in hydrogen.

9. The comparative results indicate that the process according to the present invention is distinguishable and is an improvement over the process described in the Antos patent. One of ordinary skill in the art would not have gleaned from reading the Antos patent that the particular combination described above according to the present invention would provide such unexpected, remarkable results as shown in Table 1, attached as Appendix A. The results indicated in Table 1 show that the Antos catalyst D started to deactivate immediately after only five pulses of tetralin and lost 77% of its activity in converting tetralin. Moreover, catalyst D completely lost its activity after ten pulses of tetralin. In contrast, the process in accordance with the claimed invention show far superior results, retaining more than 50% of its activity even after 25 pulses of tetralin.

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10. Based on the foregoing results, the process in accordance with the present invention is clearly distinguishable from the Antos patent. The Antos patent is typically directed to systems that do not require sulphur resistance, namely, based on a reforming catalyst, which is used after all the sulphur has been removed from the system. Therefore, the Antos patent fails to teach or suggest the ordinary skilled artisan the necessary steps in considering sulphur resistance or preparing a system suitable for treating sulphur containing feed stocks using the specific combination made as outlined in the claims.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the Unites States Code, and that such willful false statements so made may jeopardize the validity of the document, or application, or any patent issuing thereon.

Signed this 7th day of August, 2003.

By: B.H. Reesink
Bernard H. Reesink

Enclosure: *Appendix A*

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APPENDIX A

Table 1.

Number of thiophene pulses dosed	Relative tetralin conversion Catalyst D [%]	Relative tetralin conversion Catalyst A+B+C [%]
0	100	100
5	23	93
10	0	88
15	0	74
20		67
25		55
30		